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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 :		(11) International Publication Number:
G06K 19/063, B42D 15/10 E05B 35/00	A1	WO 93/11510
		(43) International Publication Date: 10 June 1993 (10.06.93)

(21) International Application Number: PCT/AU92/00655

(22) International Filing Date: 4 December 1992 (04.12.92)

(30) Priority data:
PK 9854 4 December 1991 (04.12.91) AU

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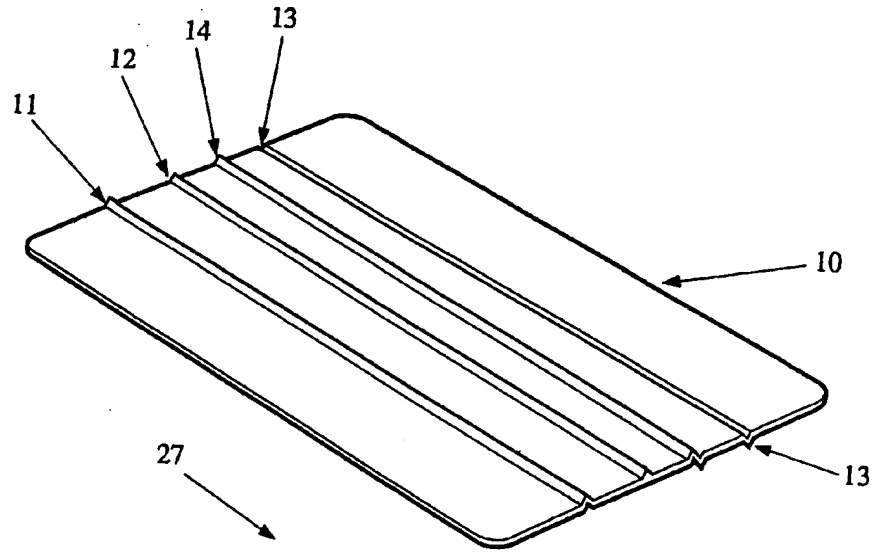
(81) Designated States: AT, AU, BB, BG, BR, CA, CH, CS, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, UA, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, SN, TD, TG).

Published
With international search report.

(54) Title: PROFILED CARD SECURITY SYSTEM



(57) Abstract

The invention relates to a card (10), such as an access or credit card, with a coded pattern of projections and/or recesses (13, 14) extending out of the plane of the card (10) which can be inserted into a lock. Any suitable receipt means, such as a shaped insertion plate (20) may be used to preclude initial entry of any card (10) not having the necessary profile, the card otherwise operating normally.

PROFILED CARD SECURITY SYSTEM

Technical Field

The present invention relates to access cards, particularly plastic cards, such as credit cards, automatic bank machine cards, and similar cards used as access devices.

Background Art

Various card-based systems are in widespread use as door locks, car park access controls, automatic teller machine and funds transfer devices, and the like. In many of these applications, standard sized plastic cards incorporating magnetic stripes are used. Mechanical card based systems have also been proposed in co-pending PCT/AU92/00577 by the present applicant, which utilise similar plastic cards .

In all of these applications, there are situations where a "restricted card" system is desirable, so that unique cards may be issued to a particular organisation. The options within the coding system (eg for magnetic swipe cards) are limited, and it is difficult to reserve whole coding sequences for single users. Examples of the application of such systems include hotels, defence facilities and building access.

It is an object of the present invention to provide a system for card restriction which is inexpensive, effective and does not interfere unduly with the basic coding features of the cards.

Summary of the Invention

According to one aspect, the present invention comprises an improved card security system, comprising a card including a coded pattern of projections and/or recesses extending out of the plane of the card and substantially parallel to the normal direction of insertion of the card;

and receipt means for said card adapted to receive only cards having a specific cross-section including said coded pattern of projections and/or recesses, in the direction of normal insertion.

According to another aspect, the present invention provides a card for accessing a secure system, comprising a first coded magnetic and /or mechanical sequence, and a second coded pattern of projections and/or

recesses extending out of the plane of the card and substantially parallel to the normal direction of insertion of the card.

Preferably the card includes a programmable magnetic strip of conventional type. Most preferably the card includes further a pattern of slots extending through the plane of the card.

Brief Description of Drawings

The invention will now be described in more detail with reference to the accompanying figures, in which:

Figure 1A illustrates a perspective view of the inventive card according to a first embodiment;

Figure 1B illustrates a section across the card of figure 1A;

Figure 2 illustrates a perspective view of a second embodiment of the invention; and

Figure 3 illustrates a receipt means for the card.

Detailed Description

Referring to figure 1, an illustrative card 10 includes a variety of surface features parallel to the normal insertion direction 20 for the lock or other receiving device. These features may be a "corrugation", and extend to both sides of the card as in features 11, 13 and 14, or be merely on one side, as in 12. The projections may be of any or various shapes, including square, hemispherical, triangular - further, all may be the same shape or same combination of shapes for a particular card. It will be appreciated that the projections must be formed in such a way as to retain sufficient mechanical strength - for instance, very deep recesses with no corresponding projection on the other side are undesirable.

An advantageous type of projection is shown as feature 14, and involves a peak and notch in each direction of approximately one half the card thickness. This allows maximum detectable travel for the receipt means while minimising the thickness of the card. it is also very difficult for a would-be thief to duplicate.

In the reading device, any suitable receipt means - for instance, a suitably shaped insertion plate as shown in figure 3 - may be used to preclude

entry of any card not having the necessary profile, or to not actuate unless grooves or peaks are present. Any suitable mechanical device may be used. For example, a biased cam may be actuated by appropriate projections at some position corresponding to the insertion of a suitable card.

It will be appreciated that the cards may be produced by any suitable means from any suitable material - although for reasons of practicality a plastics material is preferred. Cards according to the invention may be produced by extrusion, injection moulding, or other suitable techniques. Magnetic stripes, recesses or projections for mechanical card locks, security devices such as holograms, and embossed card holder details may be included in cards according to the present invention. The projecting features may be confined to one or more zones to facilitate this. Figure 2 illustrates a card with all three types of coding - magnetic, slots and a profile.

Any suitable technique may be used to cut slots or emboss card holder details as is common practice, with care taken to not damage the card due to its non-planar surface.

One particular point which must be noted is that the cross-sectional feature must be arranged so as to not unduly weaken the structural integrity of the card.

It will be appreciated that variations and additions are possible within the spirit and scope of the invention.

CLAIMS

1. An improved card security system, comprising a card including a coded pattern of projections and/or recesses extending out of the plane of the card and substantially parallel to the normal direction of insertion of the card;

and receipt means for said card adapted to receive only cards having a specific cross-section, including said coded pattern of projections and/or recesses, in the direction of normal insertion.

2. A system according to claim 1, wherein the card further includes a coded magnetic portion, and the receipt means is adapted to read the magnetic portion.

3. A card for accessing a secure system, comprising a first coded magnetic and/or mechanical sequence, and a second coded pattern of projections and/or recesses extending out of the plane of the card and substantially parallel to the normal direction of insertion of the card.

4. A card according to claim 3, including a programmable magnetic strip of conventional type.

5. A card according to claim 3 or claim 4, including a pattern of slots extending through the plane of the card.

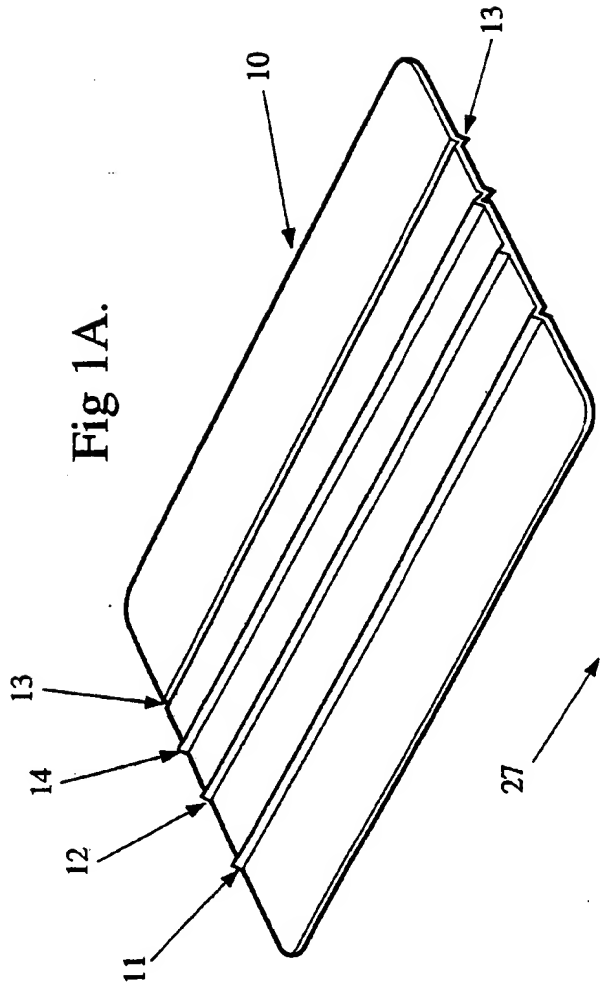


Fig 1A.

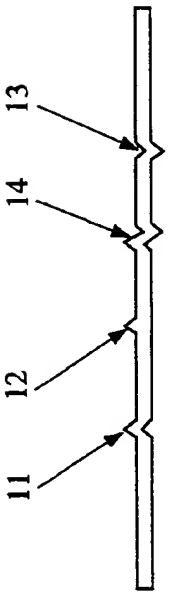


Fig 1B.

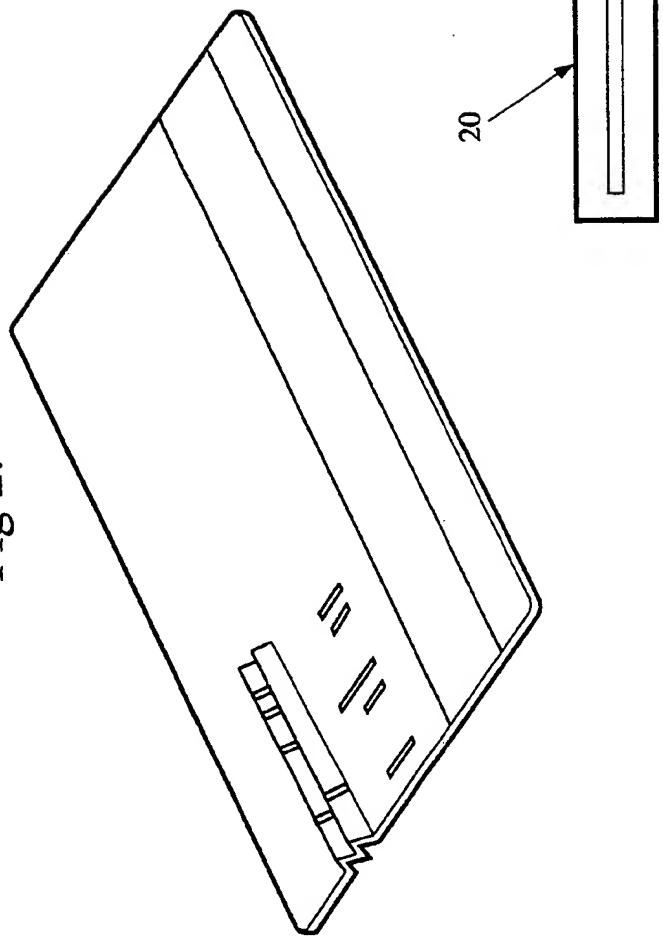


Fig 3.

Fig 2.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU92/00655

A. CLASSIFICATION OF SUBJECT MATTER
Int. Cl.[5] G06K 19/063, B42D 15/10, E05B 35/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC G06K 19/06, 19/063, 19/18, B42D 15/10, 121:00, E05B 35/00, 19/16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU : IPC as above

Electronic data base consulted during the international search (name of data base, and where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	US,A, 4914281 (BENTON et al) 3 April 1990 (03.04.90) See column 2, lines 3 to 17.	1-6
A	US,A, 4856310 (PARIENTI) 15 August 1989 (15.08.89) See the whole document.	2-5
A	US,A, 4628195 (BAUS) 9 December 1986 (09.12.86) See column 2, lines 21 to 58.	2-5
A	US,A, 4338805 (NYGREN) 13 July 1982 (13.07.82) See the abstract	1-6

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
1 March 1993 (01.03.93)	3 MARCH 1993 (03.03.93)
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No. 06 2853929	Authorized officer John Thomson J W THOMSON Telephone No. (06) 2832214

Form PCT/ISA/210 (continuation of first sheet (2)) (July 1992) copjne

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU92/00655

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate of the relevant passages	Relevant to Claim No.
A	US,A, 4297569 (FLIES) 27 October 1981 (27.10.81) See column 3, line 18 to column 4, line 55.	1-6
A	US,A, 3822396 (WATASE et al) 2 July 1974 (02.07.74) See the whole document.	2-5

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU92/00655

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	4856310	AT	74992	DE	3870020	EP	290330
		ES	2032032	FR	2614642	JP	63289184
US	4338805	DE	2965865	EP	20512	SE	421020
		WO	8000860				
US	4297569	AT	7824	CA	1141841	DE	3068100
		EP	21499	JP	56052278		
US	3822396	BE	795909	DE	2309055	FR	2184272
		GB	1376271	JP	49007099		